4. DISTRIBUTION OF THREE RODENT SPECIES IN THE HILLY TRACTS OF RAJASTHAN

(*with one text-figure*)

Three genera of rodents, *Millardia, Golunda* and *Bandicota* are Oriental in origin and geographical distribution. During the last century, their distribution was recorded as restricted in peninsular India, mostly in mesic environment, specially in better-watered tracts (Blanford, 1888-91; Jerdon 1874). Very little information is, however, available about their occurrence in the hilly tracts of Rajasthan except in Report No. 12 of the BNHS Mammal Survey of India. The report was based on a series of mammals collected by Crump at Mt. Abu located in the extreme south of the Aravalli range (Ryley, 1913). According to this report, *G. ellioti* was found to be 'common' and *B. bengalensis* as 'rare' in the Archaean granite rock system. Eighty years later, we undertook a study of the small mammals at Mt. Abu more or less at the same spot as described by Crump. It has been revealed that the relative abundance of these two rodents has drastically altered. Golund are found to be 'very abundant' and the bandicoot 'common'. This change has been attributed to the drastic denudation of the forests, alteration in the landuse pattern and recent introduction of irrigated agriculture on the hills. *Millardia meltada* was not reported by Ryley (1913), but was collected by us during 1993 and 1994 from the foothills of the Abu hill (Prakash *et al.* 1995).

A comparison of the data on small mammal abundance from earlier studies in the desert districts adjoining the Aravalli range (Prakash 1955, 1962, Prakash *et al.* 1971) with data on the main Aravalli range (Prakash *et al.*, 1995) revealed that the peninsular rodents are gradually invading the Aravallis and the southeastern Thar desert (Prakash, 1995). They have not been collected in districts away from the Aravalli.

Later, we extended our studies on the ecology of small mammals to the low Aravallis of Udaipur - Dungarpur and the Kota-Bundi-Ranthambore zones, the Vindhyan rock system in Banswara section in southern, and Jhalawar in southeastern Rajasthan (Fig. 1). Small mammals were trapped at 19 localities by laying two trap lines with 30 snap traps each, in six habitats at each locality. Since the number of traps varied at each habitat and locality, we have transformed the capture data to 700 traps to bring about similarity in trapping effort. Fig. 1 shows the abundance of the three rodent species in the two study zones. In both the zones, these rodents are unevenly distributed and their occurrence is discontinuous. *M. meltada* was collected at Banswara and Shahbad, both located near the peninsular region and south of rivers Mahi and Chambal (Fig. 1). *G. ellioti* occurred north and south of the rivers (Table 1), but in the northern region its abundance was considerably low. In the southeastern region, the variance was statistically significant ($X^2_{(1)} = 51.94$, $P < 0.001$). In southeastern region *B. bengalensis* was also trapped south of the Chambal river though in the Udaipur - Banswara zone it was caught at

TABLE 1
DISTRIBUTION OF THREE RODENT SPECIES IN THE HILLY TRACTS OF SOUTH AND SOUTHEASTERN RAJASTHAN

Region	No. of specimens		
	Millardia meltada	*Golunda ellioti*	*Bandicota bengalensis*
South Rajasthan			
North of River Mahi	0	14*	5
South of River Mahi	5	20	0
Southeastern Rajasthan			
North of River Chambal	0	6	0
South of River Chambal	35	68	20

* The number of specimens of each species has been corrected for equal number of traps (700).

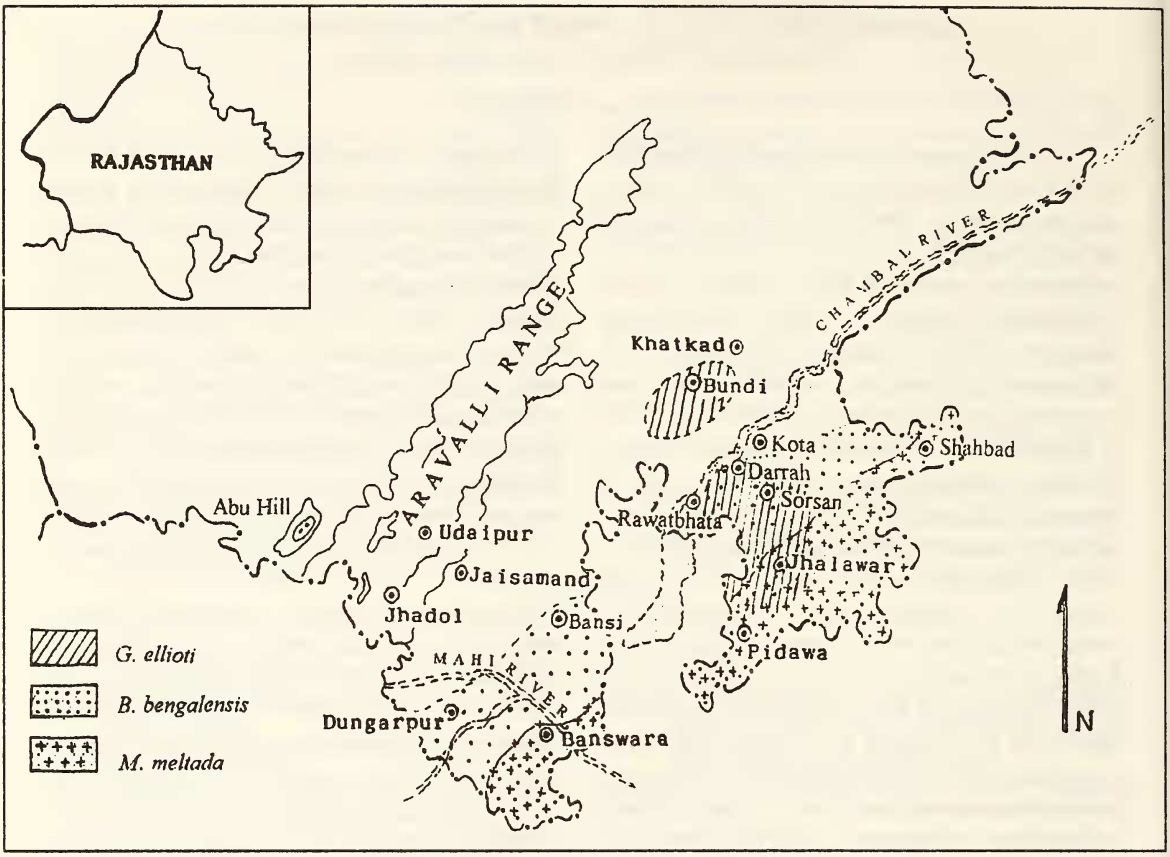

Fig. 1: Discontinuous distribution of the three rodent species

Bansi and Udaipur located north of the River Mahi (Fig. 1).

The wider distribution of bandicoot is due to its aggressive and exploratory behaviour, and adaptability. It can alter its ecological niche from that of a wild rodent to a peri-domestic rodent, and it is well known to shift even to godowns as a residential pest of foodgrains (Spillet, 1968).

The gradual decline in the abundance of these species in a south-north direction in southern and southeast Rajasthan upholds the conjecture that these peninsular elements are gradually moving northwards. A plausible explanation for their range expansion may be that it is a consequence of man's intervention in the natural ecosystem. Forests have been drastically denuded and have been transformed into irrigated crop fields. Since 1951, the irrigated area has increased more than twelve times (Moghe, 1994). Consequently, adequate soil moisture regime is available to these burrowing rodents for the whole year, and this is conducive to these mesic species. Prior to expansion of irrigation, the soil used to be moist only during the monsoon.

Our studies also suggest that the rivers Mahi and Chambal may be functioning as barriers in their northward migration.

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5. SOME FOOD PLANTS OF CHITAL (*AXIS AXIS*) IN RAJAJI NATIONAL PARK, INDIA.

While studying chital habitat use in and around Dholkhand, Rajaji National Park, India, during November 1992 - May 1993, we observed some plant items fed upon by chital. Observations were either direct (i.e. seen in the chital's mouth) or indirect (i.e. fresh signs where the chital had just fed). Binoculars (8 x 30) were used. We report our findings, which, incidentally, seem to be the northwestern-most record on chital food preferences in India.

The species and plant parts eaten are listed in Table 1. We did not see, but strongly believe from our observations on chital behaviour, that leaves of *Acacia catechu*, *Terminalia bellirica*, *Adina cordifolia*, *Carissa opaca*, and fruits of *C. opaca* and *Bauhinia racemosa* were also eaten.

Of the 35 species we have listed, 9 are being reported for the first time (Table 1), while 26 have already been documented in one or more of seven earlier reports in India. Our observations also suggest that food preferences of chital differed with seasons, availability and palatability.

TABLE 1
SOME FOOD PLANTS OF CHITAL IN THE PARK

Plant species	Part eaten	Remark
Ageratum conyzoides	stm + lf	stm & lf together
Anogeissus latifolia	lf	
**Arabidopsis thaliana*	stm + lf (nf)	Available and eaten only in March-April
**Arenaria serpyllifolia*	stm + lf (nf)	Available and eaten only in March-April
Bridelia retusa	lf	
Blumea sp.	stm + lf	
**Carex* sp.	lf	
Chloris dolichostachya	nf	
Chrysopogon fulvus	nf	
Cordia obliqua	lf	
Crotalaria sp.	stm + lf	
Cynodon dactylon	stm + lf	
Cyperus kyllingia	stm + lf (nf)	
Dendrophthoe falcata	lf	
Desmostachya bipinnata	lf (nf)	
**Dicliptera roxburghiana*	stm + lf	
**Eulaliopsis binata*	nf	Only nf from cut stock eaten
**Gnaphalium leuteo-album*	stm + lf (nf)	Available and eaten only in March-April
Helicteres isora	lf (nf)	
Heteropogon contortus	lf (nf)	
Ichnocarpus frutescens	stm + lf	
Imperata cylindrica	nf	
Justicia simplex	stm + lf	
Lantana camara	lf	

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